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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,803	11/21/2003	Himanshu Pokharna	42P17130	3345
8791	7590	10/12/2005		
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030			EXAMINER EDWARDS, ANTHONY Q	
			ART UNIT 2835	PAPER NUMBER

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

Office Action Summary

Application No.

10/719,803

Applicant(s)

POKHARNA ET AL

Examiner

Anthony Q. Edwards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 14-20 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-7, 9, 14-17, 19, 20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,510,052 to Ishikawa et al. ("Ishikawa" hereinafter) in view U.S. Patent No. 6,288,893 to Hsu. Referring to claim 1 and corresponding method claim 9, Ishikawa discloses a notebook computer system, comprising a first heat sink (32) to passively dissipate heat from the notebook computer system, a sensor system (91a, 91b) to monitor a temperature of a plurality of components (see Fig. 3), wherein the components comprise a display (3), inherently including display circuitry, and a CPU (12), and a second heat sink (71) coupled to the first heat sink, wherein the second heat sink is enabled if the notebook computer system detects that at least one the components of the notebook computer system exceeds a predefined temperature threshold. See Figs. 3, 11 and 12, as well as col. 12, lines 57-65. As indicated above, the display of Ishikawa includes a display housing with a passive heat sink and display circuitry (not shown) within the housing. The passive heat sink (32) and display circuitry (not shown) combine to produce a heat energy value (i.e., temperature) and, therefore, the heat sensor (91b) monitors a composite temperature of

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the display. Ishikawa does not teach providing a plurality of evaporators coupled to the components.

Hsu teaches a heat dissipation system for a laptop computer using a first heat pipe (30) coupled to a display having display circuitry and a second heat pipe (22) coupled to a CPU. See Fig. 2 and col. 4, lines 61-64.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Ishikawa to include evaporators coupled to (1) the display having display circuitry and (2) the CPU, as taught by Hsu, since the device of Hsu would further reduce the amount of heat energy dissipating from the display housing, thereby maintaining acceptable temperature levels of the display for the computer user.

Referring to claim 2, Ishikawa in view of Hsu disclose the notebook computer system as claimed, except for the first heat sink dissipating approximately 2-20 watts of power. It has been held that it is not inventive to discover the optimum or workable ranges by routine experiment (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

It would have been obvious, therefore, to one of ordinary skill in the art at the time of the invention to limit the amount of heat dissipated from the first heat sink of Ishikawa, as modified, to within 2-20 watts of power, since monitoring and controlling the amount of heat dissipated from the first heat sink provides a benchmark for monitoring and controlling thermal management of the entire system.

Referring to claim 4, Ishikawa in view of Hsu disclose a notebook computer system, wherein the first heat sink (32) passively dissipates heat through a display (3). See col. 12, lines 37-44 of Ishikawa.

Referring to claims 5 and 6, Ishikawa in view of Hsu disclose a notebook computer system, wherein the display (3) comprises a first plate (43a) coupled to a second plate (43b), the second plate comprising a second groove (see Fig. 10 of Ishikawa), wherein a working fluid for heat transfer is distributed across the surface area of the display through grooves (45) between the first plate and the second plate, and wherein the grooves (45) between the first plate and second plate has a plurality of turns (44) to improve temperature spreading, respectively. See Fig. 3 and col. 12, lines 37-41 of Ishikawa. Although a first groove in the first plate is not specifically taught, it would have been obvious to one having ordinary skill in the art of heat dissipation plates with tubes or grooves to includes a first and second groove, since such a modification would have involved a mere change in shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. *In re Daily*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Referring to claim 7, Ishikawa in view of Hsu disclose the notebook computer system as claimed, except for both the first and the second plates being approximately one millimeter thick. It has been held that "in considering the disclosure of the reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to

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draw therefrom" (see MPEP 2144.01; *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make both the first and second plates of Ishikawa, as modified, approximately one millimeter thick, since such thin plates (e.g., approximately one millimeter thick) would provide sufficient structural support for the circulating paths or grooves of the heat sink in the display, while also providing the structure in a light weight form.

Referring to claim 14, Ishikawa in view of Ghosh disclose a method, wherein the display (3) comprises a screen (18), inherently compromises circuitry, and comprises a cover (57), wherein heat passively dissipates through the display cover. See col. 12, lines 45-50 Ishikawa.

Referring to claim 15, as best understood by the Examiner, Ishikawa in view of Ghosh disclose a thermal management system of a notebook computer system, comprising a heat generating component including a display circuitry (see Fig. 8 of Ghosh) and a CPU (see Fig. 3 of Ishikawa), an evaporator (77) coupled to the component to remove heat from the component, wherein the heat is transported via a working fluid, and a pump (76) coupled to the evaporator to transport the working fluid from the evaporator (77) to a heat exchanger (31), wherein a fan (90) removes heat from the working fluid in the heat exchanger if at least one of the heat generating components exceed a predefined temperature threshold, and a display (3) coupled to

the evaporator (77), wherein the working fluid is spread across the surface area of the display to dissipate heat. See Figs. 3 and 11, as well as col. 11, lines 1-53 of Ishikawa.

Referring to claim 16, Ishikawa in view of Ghosh disclose the notebook computer system as claimed, except for the first heat sink dissipating approximately 2-20 watts of power. However, as indicated above, it has been held that it is not inventive to discover the optimum or workable ranges by routine experiment (see MPEP 2144.05; *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

Referring to claim 17, Ishikawa in view of Ghosh disclose a thermal management system, further comprising a hinge (52) to transfer the working fluid from the heat exchanger to the display, wherein the hinge comprises flexible tubing. See Fig. 4 and col. 9, lines 57-62 of Ishikawa.

Referring to claim 19, Ishikawa in view of Ghosh disclose a thermal management system, wherein the working fluid comprises water. See col. 9, lines 53-56 of Ishikawa.

Referring to claim 20, Ishikawa in view of Hsu discloses a thermal management system, comprising means for cooling a notebook computer passively (32), means for detecting a temperature of a plurality of notebook computer system components, wherein the components include a display (3), inherently including display circuitry, and a CPU (see Fig. 3 and the corresponding specification of Ishikawa), means for removing heat from the components using a plurality of evaporators coupled to the components (see Fig. 2 and col. 4, lines 61-64 of Hsu), and means for cooling the notebook computer system actively if a component of the computer system exceeds a threshold temperature (see Figs 3, 11 and 12, as well as col. 12, lines 57-65 of Ishikawa).

Referring to claim 22, Ishikawa in view of Hsu inherently disclose a thermal management system, further comprising means for increasing a life of a battery of the notebook computer system, since the fan control according to Fig. 12 of Ishikawa would increase the life of the battery.

Referring to claim 23, Ishikawa in view of Hsu inherently disclose a thermal management system, further comprising means for spreading a working fluid temperature across a display (3) of the notebook computer system. See col. 12, lines 37-44 of Ishikawa.

Referring to claim 24, Ishikawa in view of Hsu inherently disclose a thermal management system, further comprising means for pumping (76) a working fluid through the notebook computer system. See col. 11, lines 11-53 of Ishikawa.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of Hsu, and further in view of U.S. Patent Application Publication No. US2004/0095721 to Ellsworth, Jr. et al. ("Ellsworth" hereinafter). Referring to claim 3, Ishikawa, as modified, discloses the invention as claimed, except for the second heat sink being enabled if the notebook computer system exceeds a predefined power consumption threshold. Ellsworth teaches providing an auxiliary heat removal system (210) or (310), which is enabled when predefined power consumption of a heat source (240) is reached. See Fig. 2 and paragraph 0032, second column of the page 3.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the system of Ishikawa in view of Hsu with a heat sink or heat removal system that is enabled when predefined power consumption of a component is

reached, as taught by Ellsworth, since the device of Ellsworth would increase the coefficient of performance of the cooling system of Ishikawa in view of Hsu by simply monitoring both the power and the temperature output of the heat producing component.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa in view of Hsu, and further in view of U.S. Patent No. 6,181,555 to Haley et al.

Ishikawa, as modified, discloses the invention as claimed, except for further comprising an insulation layer to protect display circuitry from heat emanating from the first plate and the second plate. Haley et al. teach providing an insulation layer (102), between an LCD panel (101) and a thermo-plate or heat sink (104) to protect display circuitry in the LCD panel (101). See Fig. 2 and col. 3, lines 12-20 of Haley et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the notebook computer system of Ishikawa, as modified, with an insulation layer between the LCD panel and the combined first sink, as taught by Haley et al., since the device of Haley et al. would provide protection for sensitive components in the display of Ishikawa, as modified, against heat dissipating from the portion of the first heat sink facing the display.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the hinge having a flexible tubing of Ishikawa to include an exterior metal bellows, as taught by Ono, since the device of Ono would provide the hinge of Ishikawa, as modified, with an exterior surface that prolongs the lifespan of the

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hinge, and also provides for an hermetic seal in case the flexible tubing degrades prematurely.

Response to Arguments

Applicant's arguments with respect to claims 1-11, 14-20 and 22-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Q. Edwards whose telephone number is 571-272-2042. The examiner can normally be reached on M-F (7:30-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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